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Differentiated Instruction: A Review of Literature

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Abstract

Differentiated instruction is recognized to be a compilation of many theories and practices related to effective teaching and its link to student achievement. It requires a departure from traditional methods of teaching and the belief that learners vary according to readiness, ability, motivation, and interest. While numerous testimonials, examples of differentiation in practice, and for-profit tools abound in the literature, little empirical research exists warranting future research on the effectiveness of differentiated instruction as measured by student achievement on assessments. This manuscript provides a review of the literature including: the theoretical background of differentiated instruction; a rationale for the practice of differentiation; an explanation of differentiated instruction including ways to differentiate, elements and goals of the instructional approach, challenges to be overcome, and a snapshot of what differentiation looks like in action; a review of the few empirical studies that exist on differentiated instruction; and tools to evaluate differentiated instruction.

Differentiated Instruction: A Review of the Literature

If a man does not keep pace with his companions, perhaps it is because he hears a different drummer! – Henry David Thoreau

Differentiated instruction is recognized to be a compilation of many theories and practices related to effective teaching and its link to student achievement. It is a teaching strategy based on the premise that instructional approaches should vary and be adapted in relation to individual and diverse students in classrooms (Hall, 2002). While numerous testimonials, examples of differentiation in practice, and for-profit tools abound in the literature, there is an acknowledged lack of empirical validation (Hall) warranting future research on the actual effectiveness of differentiated instruction as measured by student achievement on both formal and informal assessments. The manuscript that follows provides a review of the literature including: the theoretical background of differentiated instruction; a rationale for the practice of differentiation; an explanation of differentiated instruction including ways to differentiate, elements and goals of the instructional approach, challenges to be overcome, and a snapshot of what differentiation looks like in action; a review of the few empirical studies that exist on differentiated instruction; and tools to evaluate differentiated instruction.

History of Differentiated Instruction

Research suggests that students are more successful when taught in ways that are responsive to their individual readiness levels (Vygotsky, 1978, 1986), interests (Csikszentmihalyi, 1990; Maslow, 1962), learning profiles (Sternberg, Torff, & Grigorenko, 1998), and motivational catalysts (Hertzberg, 1959). Maslow's hierarchy of needs suggests that students will learn if basic satisfiers are met. Gardner's theory of multiple intelligences and Sternberg's theory of thinking styles (Sternberg & Williams, 2003) advocate for an understanding of the ways in which individuals process and make sense of information. Hertzberg's work on motivation identifies internal motivators that lead to

satisfaction and fulfillment and external motivators that are largely found to be dissatisfiers. According to Vygotsky, students learn best when moderately challenged and should, thus, be instructed in their zones of proximal development – the range of learning between what is too easy and what is too difficult to accomplish. Differentiation specifically responds to progress on the learning continuum and helps to bridge what students already know with what they need to learn (Heacox, 2002). "To differentiate instruction is to recognize students' varying background knowledge, readiness, language, preferences in learning, interests, and to react responsively" (Hall, 2002, p. 1). It requires flexibility in both teaching and expectations that drive instruction and allows for multiple sense-making strategies.

In some ways, differentiated instruction emanates from the work of John Dewey (1916) who advocated for alignment of teacher instruction to the needs of students. It prepares students for democracy (Waterman, 2007) as it gives students responsibility for their own learning. However, it may have been Betts' (1946) work on differentiation that was the first pure focus on what he referred to as "differentiated guidance" grounded in the belief that constant evaluation of individual strengths and weaknesses allowed progression through developmental stages.

Differentiated instruction is also situated in research related to cognition and the brain (Jensen, 1998) as well as multiple intelligences (verbal/linguistic, logical/mathematical, visual/spatial, bodily/kinesthetic, musical, interpersonal, intrapersonal, and naturalist) (Gardner, 1993), firmly grounding it in an understanding of how people learn. According to Clark (2002), children learn more quickly when instruction is made relevant. The brain changes physically and chemically when challenged and, without challenge, neurons cease to fire and the brain does not increase in capacity. The idea of student choice is based on brain research conducted by Deci (1995) and Jensen that says students are intrinsically motivated if they have choices. Along similar lines, Bloom's (1994) Six Levels of Higher Thinking (knowledge, comprehension, application, analysis, evaluation, and

synthesis) are also embedded to ideas of differentiating instruction as they encourage greater rigor for some students and variability among all.

Implementation began in the general education classroom (Hall, 2002) and continues to be predominantly situated there today because of the intent to maximize learning for all students in the same classroom. According to Slavin (1987, 1993), slow learners are rarely more successful when placed in homogeneous groupings. Differentiated instruction supports a community of learners rather than groups of students labeled as slow and fast (Corley, 2005).

Learning is the construction of understanding and application which requires that individuals make their own meaning (Corley, 2005). Differentiation is founded on the notion of student empowerment and is connected to the writings of critical thinkers such as Friere (1970) and hooks (1994) who advocate for dialogical and constructivist teaching methods. Education is the practice of freedom and requires student participation. Differentiated instruction requires the building of community, recognizes and validates the experiences and strengths of all, and allows students to integrate "new" knowledge into their unique perspectives and personal backgrounds.

Rationale for the Use of Differentiated Instruction

"Teaching to the norm" has been a common practice in schools (Tomlinson, 2004) and has continued because of an education system based on categorical services. Furthermore, No Child Left Behind (NCLB) aims attention and resources at moving nonproficient students along with no incentives for growth once proficiency is achieved when, in actuality, it should ensure that no child is left behind in terms of developing his or her possibilities (Tomlinson, 2002, p. 38). According to one classroom teacher (as cited in Tomlinson, 1995), "We've been shooting with water guns – a small stream of water down the middle of the class. We've got to figure out how to be oscillating sprinklers – and where to put the soak hoses from time to time" (p. 82).

According to Bundoc (2007), the rationale for implementing differentiated instruction has been driven by increasingly diverse populations and larger class sizes that can negatively impact student achievement. Tomlinson (2003) explained that as classrooms have changed and become more diverse, it has forced educators to think about new ways of responding to the needs of students. Classrooms are diverse in regard to:

1) Cognitive abilities (i.e., multiple intelligences);
2) Learning styles;
3) Socioeconomic factors;
4) Readiness;
5) Learning pace;
6) Gender influences; and
7) Cultural influences (Heacox, 2002).

"In some ways, differentiated instruction gives every student the specialized instructional focus that's long been provided for special education students through individualized education plans" (Heacox, p. 7). It also supports a curriculum that demonstrates care for individual students as it allows for multiple demonstrations of mastery (Noddings, 1992).

Student demographics in the United States have increasingly become diversified (Reitumetse & Madsen, 2005). According to Lim and A'Ole-Boune (2005), 43 percent of children currently being served by public schools are non-white. One factor that has caused schools to rethink how they deliver instruction to students is the achievement gap between Caucasian and minority students (Tomlinson, 2003). African American students in particular perform lower on standardized tests than Caucasian students (Jencks & Phillips, 1998; Singham, 1998). More appalling is the fact that the achievement gap widens throughout K-12 education and actually increases the longer students remain in school

(Sherman, in press). The achievement gap exists despite instances of the equal schooling and occurs irrespective of class (Johnston & Viadero, 2000; Zernike, 2000).

A second factor that has driven the need for differentiated instruction is the movement toward inclusion of special education students (Tomlinson, 2003). According to the National Center for Education Statistics (NCES), 13.4 percent of public school students were being served under the *Individuals with Disabilities Education Act of 1994* during the 2001-2002 school year (as cited in Richardson, 2007). A third force that has caused the push for differentiation is the increasing number of English language learners (ELL) (Tomlinson). Currently, over five million students in the United States are English language learners resulting in over 400 languages being spoken in schools on a daily basis (Klotz, 2008).

A final factor that has contributed to the need for differentiation is the identified weakness in the way in which gifted students have been served (Tomlinson, 2003). According to Colangelo, Assouline, and Gross (2004), research indicates that keeping all students engaged, including those that are gifted, is key to a school's success. Winebrenner (2001) believes the underachievement of gifted students may result from a one-size-fits-all curriculum as students learn to take the easy way out early in life when they are praised for the completion of effortless tasks.

What is Differentiation?

Differentiated instruction is not mass-produced, standardized instruction. Simply giving students more work is not differentiated instruction. Differentiated instruction allows students to gain a basic knowledge of skills and, when appropriate and possible, delve deeper into content to gain a more complex understanding of concepts to be learned. For example, a basic requirement for a secondary literature class might be to read two American short stories and then compare and contrast in writing or in graphic format. An "advanced" requirement might be to read three American short stories.

However, this simply assigns students additional work and is not differentiated instruction. In contrast, a differentiated approach to an advanced requirement might be to read two American short stories, determine how each story might be told if set in current times, and consider similarities and differences.

According to Tomlinson (1999), the practice of differentiation involves making changes that enable children to learn with their peers in an inclusive schooling system. In essence, differentiated instruction has brought back the challenge of the one-room schoolhouse of the past (Hess, 1999). It is the matching of work to differing individual capabilities and requires the delivery of the curriculum in a number of different ways. The single most important aspect of differentiation is beginning instruction where students are.

Differentiation is the two-step process that analyzes the degree of challenge in teacher planning and modifies, adapts, or designs new approaches to meet student's needs, interests, and learning preferences (Heacox, 2002). Therefore, it is both driven and monitored by continuous informal and formal assessment as instruction is aimed at a student's needs directly, but temporarily, allowing the process to be developmental and flexible (Walpole & McKenna, 2007). Tiered instruction is essential and should begin with high quality whole group instruction followed by differentiated small group instruction and then intensive intervention if needed (Walpole & McKenna).

Elements of Differentiation

According to Tomlinson (1999, 2001, 2003), three elements guide differentiated instruction: content; process; and products. Content involves what students need to learn. All students are given equitable access to the same content, but are allowed to master this in different ways. Process refers to the ways in which content is taught through tiered activities and the use of flexible grouping by student readiness, interest, or learning profile (Corley, 2005; Tomlinson & Eidson, 2003). Products entail how

students demonstrate understanding and whether they can actually apply new knowledge. Students are typically given a choice of products from which to demonstrate mastery including reports, oral presentations, group discussions, books, and games. Tomlinson and Eidson (2003) expanded the elements that guide differentiation to include two additional elements: affect, meaning how students link thought and feeling in the classroom; and learning environment, meaning the way the classroom feels to a student and functions.

Goals of Differentiation

The goals of differentiated instruction are multifarious:

1) To develop challenging and engaging tasks for each learner;
2) To develop instructional activities based on essential topics and concepts, significant processes and skills, and multiple ways to display learning;
3) To provide flexible approaches to content, instruction, and products;
4) To respond to students' readiness, instructional needs, interests, and learning preferences;
5) To provide opportunities for students to work in varied instructional formats;
6) To meet curriculum standards and requirements for each learner; and
7) To establish learner-responsive, teacher-facilitated classrooms (Heacox, 2002).

Ways to Differentiate

Three questions drive differentiation: 1) What do you want students to know?; 2) How can each student best learn this?; and 3) How can each student most effectively demonstrate the learning (Corley, 2005). Once these questions have been answered, according to Maker (1986), differentiation can occur according to:

- Learning environment – The aim is to create a learning environment which encourages students to engage their abilities to the greatest extent possible, including taking risks and building knowledge and skills in what they perceive as a safe, flexible environment. It should be:
    - Student-centered - focusing on the student's interests, input and ideas rather than those of the teacher,
    - Encouraging independence - tolerating and encouraging student initiative,
    - Open - permitting new people, materials, ideas and things to enter and non-academic and interdisciplinary connections to be made,
    - Accepting - encouraging acceptance of others' ideas and opinions before evaluating them,
    - Complex - including a rich variety of resources, media, ideas, methods and tasks, and
    - Highly mobile - encouraging movement in and out of groups, desk settings, classrooms, and schools.
- Content modification – The aim is to remove the ceiling on what is learned, and use the student's abilities to build a richer, more diverse and efficiently organized knowledge base. This building can be facilitated by encouraging:
    - Abstractness - with content shifting from facts, definitions and descriptions to concepts, relationships to key concepts, and generalizations,
    - Complexity - with content shifting to inter-relationships rather than considering factors separately,
    - Variety - with content expanding beyond material presented in the normal program,
    - Study of people - including the study of individuals or peoples, and how they have reacted to various opportunities and problems, and

- Study of methods of inquiry - including procedures used by experts working in their fields.

- Process modification – The aim is to promote creativity and higher level cognitive skills, and to encourage productive use and management of the knowledge the students have mastered. This can be facilitated by encouraging:
  - Higher levels of thinking - involving cognitive challenge using Bloom's Taxonomy of Cognitive Processes, logical problems, critical thinking and problem solving,
  - Creative thinking - involving imagination, intuitive approaches and brainstorming techniques,
  - Open-endedness - encouraging risk-taking and the response that is right for the student by stressing there is no one right answer,
  - Group interaction - with highly able and motivated students sparking each other in the task, with this sometimes being on a competitive and sometimes on a cooperative basis (depending on the task and its objectives),
  - Variable pacing - allowing students to move through lower order thinking more rapidly but allowing more time for students to respond fully on higher order thinking tasks,
  - Variety of learning processes - accommodating different students' learning styles,
  - Debriefing - encouraging students to be aware of and able to articulate their reasoning or conclusion to a problem or question, and
  - Freedom of choice - involving students in evaluation of choices of topics, methods, products and environments.
- Product modification – The aim is to facilitate opportunities for talented students to produce a product that reflects their potential. This can be encouraged by incorporating:

- Real problems - real and relevant to the student and the activity,
- Real audiences - utilizing an "audience" that is appropriate for the product, which could include another student or group of students, a teacher (not necessarily the class teacher), an assembly, a mentor, a community or specific interest group,
- Real deadlines - encouraging time management skills and realistic planning,
- Transformations - involving original manipulation of information rather than regurgitation, and
- Appropriate evaluation - with the product and the process of its development being both self-evaluated and evaluated by the product's audience using previously established "real world" criteria that are appropriate for such products.

Differentiation can also be achieved by the level of support a teacher gives to a student.

Differentiation in Action/Instructional Strategies

If readiness varies, teaching becomes complex as tiered activities and small groups must be created while requiring all students to learn central content, but to complete activities appropriate to their individual levels (Corley, 2005). "The cornerstone of differentiation is active planning: the teacher plans instruction strategically to meet learners where they are and to offer multiple avenues through which they can access, understand, and apply learning" (Corley, p. 13). The focus is not on the adjustment of students, but, rather, the adjustment of teaching and instructional strategies making it about learning, not teaching. The teacher is a facilitator who "...puts students at the center of teaching and learning. It lets their [student] learning needs direct instructional planning" (Heacox, p. 2) and allows for demonstration of strengths and interests.

According to Tomlinson and Eidson (2003), strategies for differentiating content according to student readiness, interest, and learning profile include:

- Readiness – Provide texts at varying levels, offer extensions for advanced students, and reteach,
- Interest – provide interest centers, use student questions to guide lectures, and provide materials for varying interests, and
- Learning profile – present in visual, auditory, etc. modes, use applications and examples, and use examples from a wide range of intelligences.

Strategies for differentiating process according to student readiness, interest, and learning profile include:

- Readiness – use tiered activities, give detailed task directions, and provide resources materials at varying levels,
- Interest – use the jigsaw strategy and design tasks that require multiple interests for completion, and
- Learning profile – allow multiple options for expression of learning and encourage students to work together and alone.

Strategies for differentiating product according to student readiness, interest, and learning profile include:

- Readiness – use tiered product assignments, lead mini-workshops at varying levels, and develop benchmarks for success on grade-level expectations and individual needs,
- Interest – allow students to use a range of media, and provide opportunities for students to develop independent inquiries, and
- Learning profile – provide visual, auditory, and kinesthetic product options, and teach students how to use a wide range of product formats.

Challenges to Differentiated Instruction

The greatest challenge to differentiated instruction is time, followed by classroom management, changing teacher expectations, and professional development (Corley, 2005). Heacox (2002) also identified challenges as how to make grouping invisible (i.e., so that students do not feel as if they have been placed in fast and slow groups); grading; lack of necessary budgetary resources; and lack of a concrete and operational definition available for parent explanations.

Some teachers fear that differentiated instruction is unfair because of its allowance for different treatment for different students (Connor, Morrison, & Katch, 2004). However, it should be remembered that differentiated tasks are only one consideration in grading and that grades can be based on rigor, not the amount of time a task takes or the amount of work that is done. Students can be given choices (i.e., For a grade of A, the student must…; for a grade of B, the student must…, for a grade of C, the student must…) and allowed to pick how much effort they wish to put forth (Heacox, 2002).

Other teachers believe differentiation to be impractical in a time of high demands for accountability because of lack of time. "Differentiated instruction means changing the pace, level, or kind of instruction you provide in response to individual learners' needs, styles, or strengths" (Heacox, 2002, p. 2). However, differentiation can be successfully implemented whether the curriculum is driven by district-mandated standards, state-mandated standards, or whether it is measured by performance assessments. According to Heacox, differentiation allows for the more efficient use of time and is the best response to standards because it is almost impossible to meet them without differentiating.

A significant number of teachers have doubts about the successful implementation of differentiation because of its requirement for increased classroom management skills. However,

literature on the effective practice of differentiated instruction includes directions for the use of learning centers and stations, orbital studies (independent studies that last three to six weeks and revolve around a facet of the curriculum) (Stevenson, 1997), tiered activities (all students focus on essential understanding and skills, but at different levels of complexity, abstractedness, and open-endedness), learning contracts (teacher specifies goal and students take responsibility), independent studies (tailor-made to develop talent and interest areas), spin-offs (challenges), choice boards (pockets to direct flow of traffic), group investigations (students must plan, carry out, present, and evaluate), and problem-based learning (teacher presents problem and students seek information, locate resources, pose solutions, and assess).

In a case study of a school implementing differentiation, Tomlinson (1995) identified several administrative barriers to success: enforcing top-down decision-making; fear of faddism (that differentiated instruction was simply a "fad of the month"); need for flexible blocks of time; changing expectations of teachers without adequate support; changing expectation of multiple avenues to learning versus a single way; management versus control; and moving to student-centeredness versus teacher-centeredness. She also identified skills lacking that were needed for successful implementation including: developing a rationale; preparing students and parents; classroom management; defining key concepts to be taught; differentiating what is to be taught; differentiating how students think about what is taught; differentiating how students show what they know; developing models for lessons; establishing interdisciplinary lessons, and expanding strategies for differentiating content, process, and product. Furthermore, Tomlinson found that administrators had not modeled differentiation in their own treatment of teachers (who have different skills and needs) and had acted as poor role models. Richardson (2007) found similar administrative obstacles to successful implementation of

differentiated instruction and that leaders need a more complete understanding of the process as well as training on leading the change process.

Empirical Research

While there is a dearth of empirical research on differentiated instruction and its affect on student achievement, a few studies have been identified that support strategies often employed in the process of differentiating or that measure teacher-use of differentiation. There has also been a recent increase in dissertation work related to differentiated instruction from which some empirical data has germinated.

Connor, Morrison, and Katch (2004) observed first grade instruction in 42 classrooms, measured 108 target children, and linked teachers' instructional practices to growth in student achievement. Instruction was described as either explicit (when children's attention was focused on strategies) or implicit (when skills were allowed to develop more naturally) and coded as either teacher-managed or child-managed (i.e., independent learning, freedom of choice). Change in the above dimensions was measured to investigate whether teachers adapted their routines over the course of the year as children's skills changed. Findings indicated that students achieved more growth when their instruction was matched to their needs. For example, for students who began the year with weak decoding and vocabulary skills, growth was experienced with explicit teaching. For students who began the year with strong skills, growth was experienced more with implicit instruction. Connor, Morrison, and Petrella (2004) employed a similar design for third grade children (explicit/implicit; teacher-managed/child-mangaged; word-level/higher order; and time) and measured for reading comprehension. Findings again indicated that growth was maximized when children were provided instruction to match their needs.

Stager (2007) examined the effectiveness of differentiated instruction, specifically tiered activities, in increasing student knowledge in regard to fractions. Students were grouped according to ability, instructed by the teacher, and asked to complete activities at the appropriate level in their groups. While all students made significant gains in their mean test scores, not all achieved mastery. Though forming homogeneous groups allowed students to attain the same knowledge and to meet measurable success, further study is warranted to deepen understanding of how differentiated instruction can support mastery by all.

Two additional studies were identified that focused on teacher-use of differentiation strategies. Westberg et al. (1993) found that teachers did not use strategies to differentiate often, if at all. A decade later in a follow-up study, Westberg and Daoust (2003) found similar results – teachers still were not using strategies to differentiate in the classroom to any significant extent. Bundoc (2007) also found that the current ways in which differentiated instruction is practiced is far from ideal. Furthermore, Lee and Olszewski-Kubilius (2006) found that teachers were more likely to differentiate in fast-paced, condensed courses rather than in regular paced classes and that even when differentiating, teachers rarely moved beyond the textbook for enrichment materials. However, when researchers have been able to pinpoint successful implementation of differentiated instruction, it has been found to improve student motivation in classroom activities (Christensen, 2007).

Tomlinson (1995) conducted a case study examination of one school's district mandate for differentiated instruction and found the continuum of differentiation to include: 1) no differentiation, where the class worked as a whole with group pacing; 2) microdifferentiation, where questions were sometimes adjusted in discussions, individuals sometimes encouraged to take assignments further, some allowance for small group work, and occasional adjustments made for individual students; and 3) macrodifferentiation, where a philosophy of student differences was articulated, variable pacing

practiced, variations were planned, flexible groups were consistently used, and grading reflected individual growth. Tomlinson presented factors that impeded successful implementation of differentiated instruction in the school that included fear of change and the unknown, lack of a common definition of the practice, and poor administrative support. Richardson (2007), after interviewing 20 school principals that had implemented differentiated instruction, found that leaders need to develop a more thorough understanding of differentiated instruction, have more training on leading the change process required for implementation, and learn about more effective staff development practices.

Tools to Evaluate Differentiated Instruction

Numerous tools for implementing and evaluating differentiated instruction exist in books aimed toward k-12 practitioners. While these tools are helpful in the implementation of differentiation in classrooms and across schools and districts, they are not grounded in research on best practice and have not been developed with attention to validity and reliability. A plethora of graphic organizers and strategies for implementation are presented in the literature for k-12 teachers involved in initiatives to differentiate instruction. Fewer evaluation tools exist for the purpose of evaluating teacher "effectiveness" of the practice of differentiating instruction, but those that do exist, while not necessarily research-based in the sense of the validation and reliability required for empirical research, have been developed by professional development experts in the field of curriculum and instruction.

An exhaustive search of the literature identified one dissertation "position paper" based on an effort to develop evaluation tools to measure the implementation of differentiated instruction and the impact on student achievement. The tools created were part of a staff development initiative that had been implemented in one school district and were developed to answer questions and concerns that had been identified through interviews with administrators. Tools developed include: a district-wide

survey, workshop survey, implementation matrix, classroom visit and lesson analysis protocols, walkthrough protocol, and interview protocols. While the tools were created from existing literature on the practice of differentiation, they had not yet been field tested and were targeted for piloting in a three-year implementation period (see Downes, 2006). And, while the tools developed were designed to evaluate a program of implementation of differentiated instruction, they were not created to measure the impact on student achievement.

Implications and Conclusion

Many educators believe that differentiated instruction has the potential to transform teaching and learning in a way that raises expectations for all students. However, it is an evolutionary process that should be implemented cumulatively (Hess, 1999) through targeted, in-depth professional development that consists of much more than one-shot-deal workshops. Differentiated instruction must begin with the best instruction and can take seven to ten years to institutionalize (Hess). It is a departure from traditional teaching based on the belief that students are more successful when instruction takes into account their varying backgrounds, readiness levels, preferences in learning, and interests. Differentiated instruction allows students multiple options for making sense of and demonstrating information.

Differentiation is grounded in and related to various theories of learning including Vygotsky's (1978, 1986) research on the zone of proximal development, Csikszentmihalyi's (1990) and Maslow's (1962) research on interests and needs, Sternberg's (1998) research on learning profiles, Dewey's (1916) research on aligning instruction to student needs, Jensen's (1998) and Deci's (1995) research on brain-based learning, and Gardner's (1993) research on multiple intelligences. While the above research is distinct and independent, all support the maximization of student learning for all students in

the same class through the recognition that instructional approaches should vary and be adapted in relation to individual and diverse students in classrooms (Hall, 2002).

Empirical evidence is lacking for the practice of differentiating instruction. While literature on the application and implementation of differentiation is abundant, there is a marked gap in regard to its link to student achievement. Though differentiated instruction is grounded in what scholars and practitioners believe to be "best practice," little to no empirical studies have been conducted to support and validate the practice. Some qualitative research studies exist that report on challenges to implementation, leadership perspectives of implementation, and its connection to student motivation, but, to date, differentiated instruction has not been empirically linked to increases in student achievement to a significant extent. Thus, as schools and school districts dedicate significant resources toward the implementation of differentiation, research is warranted that substantiates its effectiveness.

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